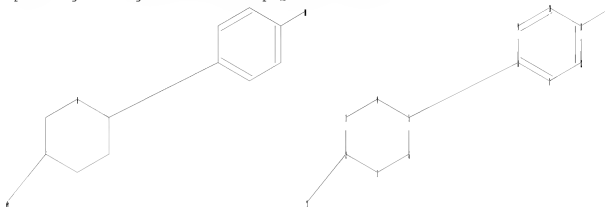


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Uploading C:\Program Files\Stnexp\Queries\rkk803.str



chain nodes :

13 14

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12

chain bonds :

2-13 5-8 11-14

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

exact/norm bonds :

11-14

exact bonds :

1-2 1-6 2-3 2-13 3-4 4-5 5-6 5-8

normalized bonds :

7-8 7-12 8-9 9-10 10-11 11-12

isolated ring systems :

containing 1 : 7 :

Hydrogen count :

1:>= minimum 1 3:>= minimum 1 6:>= minimum 1 7:>= minimum 1 9:>= minimum 1

10:>=

minimum 1 12:>= minimum 1

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom

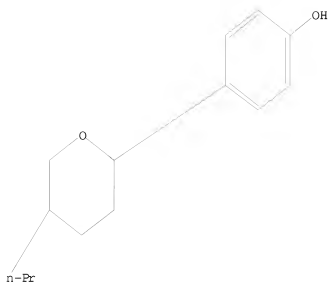
11:Atom 12:Atom 13:CLASS 14:CLASS

L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1 ful

FULL SEARCH INITIATED 19:52:04 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 4492 TO ITERATE

100.0% PROCESSED 4492 ITERATIONS

4 ANSWERS

SEARCH TIME: 00.00.01

L2 4 SEA SSS FUL L1

=> d 1-4

L2 ANSWER 1 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN

RN 916155-03-8 REGISTRY

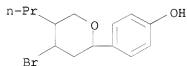
ED Entered STN: 21 Dec 2006

CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)

MF C14 H19 Br O2

SR CA

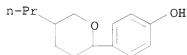
LC STN Files: CA, CAPLUS



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1907 TO DATE)
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN
 RN 879544-24-8 REGISTRY
 ED Entered STN: 06 Apr 2006
 CN Phenol, 4-(tetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)
 MF C14 H20 O2
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT

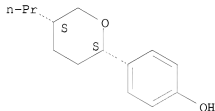


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN
 RN 879544-22-6 REGISTRY
 ED Entered STN: 06 Apr 2006
 CN Phenol, 4-[(2R,5R)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)
 FS STEREOSEARCH
 MF C14 H20 O2
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT

Relative stereochemistry.



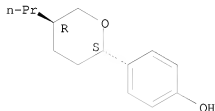
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN

RN 700863-32-7 REGISTRY
 ED Entered STN: 29 Jun 2004
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)
 FS STEREOSEARCH
 MF C14 H20 O2
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Relative stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

6 REFERENCES IN FILE CA (1907 TO DATE)
 6 REFERENCES IN FILE CAPLUS (1907 TO DATE)

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COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	186.36	186.57

FILE 'CAPLUS' ENTERED AT 19:52:14 ON 15 JUL 2008
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FILE COVERS 1907 - 15 Jul 2008 VOL 149 ISS 3
 FILE LAST UPDATED: 14 Jul 2008 (20080714/ED)

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2008.

Effective October 17, 2005, revised CAS Information Use Policies apply.
They are available for your review at:

<http://www.cas.org/legal/infopolicy.html>

=> s l2

L3 6 L2

=> d 1-6 bib abs hitstr

L3 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2006:1252591 CAPLUS <<LOGINID:20080715>>

DN 146:36423

TI Method for producing 2,5-substituted tetrahydropyran derivatives by
reductive elimination of the corresponding 4-halogen derivative

IN Poetsch, Eike; Binder, Werner; Lehmann, Stefan; Bensinger, Dieter

PA Merck Patent G.m.b.H., Germany

SO PCT Int. Appl., 72pp.

CODEN: PIXXD2

DT Patent

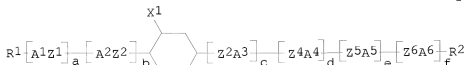
LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006125526	A1	20061130	WO 2006-EP4387	20060510
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	CN 101180287	A	20080514	CN 2006-80017968	20071123
	KR 2008019018	A	20080229	KR 2007-730162	20071224
FRAI	EP 2005-11323	A	20050525		
	WO 2006-EP4387	W	20060510		
OS	MARPAT 146:36423				
GI					



I



II

AB The invention relates to a method for producing the tetrahydropyran derivs. I, characterized by subjecting a tetrahydropyran derivative II to a reductive elimination of substituent X1, whereby X1 represents Cl, Br, or I. In the general formulas, a, b, c, d, e, and f are independently 0 or 1, and a + b + c + d + e + f equals 0, 1, 2, 3, or 4; R1 is H, halogen, -CN, a C1-C15 alkyl optionally singly substituted with -CN and optionally multiply substituted with -C.tplbond.C-, -CH=CH-, -O-, -S-, -SO-, -SO2-, -CO-O-, or -O-CO-, with no two O atoms adjacent; R2 is independently H, halogen, -CN, -NCS, -NO2, -OH, -SF5, -O-Aralkyl, a C1-C15 alkyl optionally singly substituted with -CN or optionally multiply substituted with halogen, -OH, -O-Aralkyl, -C.tplbond.C-, -CH=CH-, -O-, -S-, -SO-, -SO2-, -CO-O-, or -O-CO-, with no two O atoms adjacent. In the same general formulas, all A groups are 1,4-substituted cyclohexanes or cyclohexenes, 2,5-substituted pyran, 1,3-substituted cyclobutane, a chain of two or three 1,3-connected cyclobutanes, or various ring systems; Z1 is a simple bond, an optionally substituted with F or Cl C1-C6 alkyl bridge, -CH2O-, -OCH2-, or -CF2O-; Z2 is a simple bond, or a C1-C6 alkyl bridge optionally substituted with F, Cl, or both; and Z3, Z4, Z5, and Z6 are the same as Z1, except no -CF2O- bridge may be connected over its O-atom directly to a cyclohexylene ring. The tetrahydropyran derivs. function as mesogens in liquid crystal applications and have after synthesis the proper stereochem., in part or in entirety.

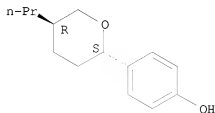
IT 700863-32-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(method for producing substituted hydropyran derivs. by reductive
elimination of corresponding 4-halogen derivative)

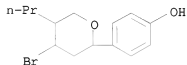
RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
NAME)

Relative stereochemistry.



IT 916155-03-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (method for producing substituted tetrahydropyran derivs. by reductive
 elimination of corresponding 4-halogen derivative)
 RN 916155-03-8 CAPLUS
 CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2006:1252349 CAPLUS <<LOGINID:20080715>>
 DN 146:36421
 TI Method for producing halogenated tetrahydropyran derivatives for liquid
 crystal applications
 IN Poetsch, Eike; Binder, Werner; Kirschbaum, Michael; Schaefer, Ralf;
 Bensinger, Dieter; Nothnagel, Guenther
 PA Merck Patent G.m.b.H., Germany
 SO PCT Int. Appl., 80pp.
 CODEN: PIXXD2
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006125527	A1	20061130	WO 2006-EP4388	20060510
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	CN 101180286	A	20080514	CN 2006-80017926	20071123
	KR 2008019019	A	20080229	KR 2007-730166	20071224
PRAI	EP 2005-11325	A	20050525		
	WO 2006-EP4388	W	20060510		
OS	MARPAT 146:36421				
AB	The invention relates to a method for producing tetrahydropyran derivs., to the tetrahydropyran derivs., and to the use of the tetrahydropyran derivative for producing other tetrahydropyran derivs. The invention relates				

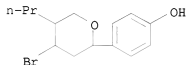
in particular to producing halogenated tetrahydropyran derivs. Synthetic methods are described for producing 2,5-disubstituted tetrahydropyran derivs. that can serve as mesogens in liquid crystal applications. The tetrahydropyran derivs. will already possess the desired stereochem. partly or entirely.

IT 916155-03-8P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(method for producing halogenated hydropyran derivs. for liquid crystal applications)

RN 916155-03-8 CAPLUS

CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



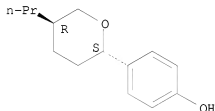
IT 700863-32-7P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(method for producing halogenated hydropyran derivs. for liquid crystal applications)

RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2006:238162 CAPLUS <<LOGINID::20080715>>

DN 144:311909

TI Preparation of trans-2,5-disubstituted tetrahydropyrans

IN Wagner, Robert; Kirschbaum, Michael; Poetsch, Eike; Bensinger, Dieter;
Mueller, Sebastian; Meyer, Volker

PA Merck Patent GmbH, Germany

SO Ger. Offen., 13 pp.

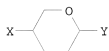
CODEN: GWXXBX

DT Patent

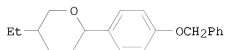
LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 102005032800	A1	20060316	DE 2005-102005032800	20050714
PRAI	DE 2004-102004037514	IA	20040803		
OS	CASREACT 144:311909				
GI					



I



II

AB A process for the preparation of title compds. I [X = (Z1-A1)a-R1; Y = (Z2-A2)b-R2; A1, A2 = 1,4-cycloalkylene, 1,4-phenylene, 2,6-naphthyldiyl (sic), etc.; a, b = 0-2; R1, R2 = (un)substituted alkyl with provisos; Z1, Z2 = CH2CH2, (CH2)4, OCF2, etc.] via the isomerization of cis-2,5-disubstituted tetrahydropyrans was disclosed. For example, tribromobismuthine mediated isomerization of a mixture of cis:trans tetrahydropyran II (48:50) in DCM afforded the trans-isomer of tetrahydropyran II in 87%.

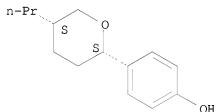
IT 879544-22-6

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of trans-2,5-disubstituted tetrahydropyrans)

RN 879544-22-6 CAPLUS

CN Phenol, 4-[(2R,5R)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.

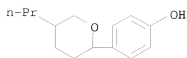


IT 879544-24-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of trans-2,5-disubstituted tetrahydropyrans)

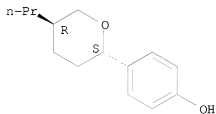
RN 879544-24-8 CAPLUS

CN Phenol, 4-(tetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



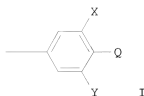
IT 700863-32-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of trans-2,5-disubstituted tetrahydropyrans)
 RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)

Relative stereochemistry.



L3 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2004:1035071 CAPLUS <<LOGINID:20080715>>
 DN 142:30170
 TI Pyrans as liquid crystals for electrooptical and display devices
 IN Goulding, Mark John; Duffy, Warren; Adlem, Kevin; Kirsch, Peer; Hahn,
 Alexander; Poetsch, Eike; Binder, Werner; Meyer, Volker; Klasen-Memmer,
 Melanie; Heckmeier, Michael; Luessem, Georg
 PA Merck Patent GmbH, Germany
 SO Eur. Pat. Appl., 22 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1482021	A1	20041201	EP 2004-12212	20040524
	EP 1482021	B1	20070124		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	AT 352602	T	20070215	AT 2004-12212	20040524
	US 20050012073	A1	20050120	US 2004-854773	20040527
	US 7022865	B2	20060404		
PRAI	EP 2003-11906	A	20030527		
OS	MARPAT 142:30170				
GI					



AB Tetrahydropyran derivs. comprising at least three cyclic rings and one aromatic end group of the formula I (X, Y = H, F, with the proviso that at least one of X and Y is F; Q = H, -CN, -NCS, -F, -Cl, -CF₃, -OCF₃, -OCHF₂, -OCHF₂CF₃, SF₅ or -OCF₂CF₃); a process for preparing said tetrahydropyran derivs., and the use of said tetrahydropyran derivs. as a component in a liquid crystal composition The object of the present invention is to provide

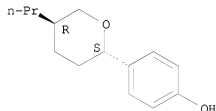
new tetrahydropyran derivs. which are suitable as components in liquid crystalline compns. and display devices, especially in nematic media having a balanced profile of the following properties: rotational viscosity, dielec. anisotropy and holding ratio; and having a good solubility for other components of liquid crystal compns. and a high pos. dielec. anisotropy.

IT 700863-32-7P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of liquid crystals for electrooptical and display devices)

RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:962862 CAPLUS <<LOGINID::20080715>>

DN 141:403631

TI Liquid crystal compound and liquid crystal mixture showing improved physical properties for liquid crystal display

IN Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Meyer, Volker; Heckmeier, Michael; Klasen-Memmer, Melanie; Luessem, Georg; Hock, Christian

PA Merck Patent GmbH, Germany

SO Ger. Offen., 100 pp.

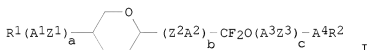
CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10318420	A1	20041111	DE 2003-10318420	20030424
PRAI	DE 2003-10318420		20030424		
OS	MARPAT 141:403631				
GI					



AB The title liquid crystal compound is represented by I (R1, R2 = H, halo, C1-15-alkyl, alkoxy; A1-4 = trans-1,4-cyclohexylene, 1,4-phenylene, etc.; Z1-3 = -COO-, -OCO-, -CF2O-, -OCF2-, etc.; a, b, c = 0-3). There are synthesis examples as well as 11 liquid crystal mixture examples.

IT 700863-32-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

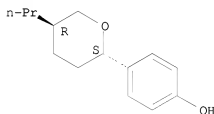
(preparation of liquid crystal compound and liquid crystal mixture showing improved

phys. properties for liquid crystal display)

RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



L3 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:466725 CAPLUS <<LOGINID::20080715>>

DN 141:44938

TI Liquid crystalline compound suitable for liquid crystal mixture of liquid crystal display

IN Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Meyer, Volker; Heckmeier, Michael; Klasen-Memmer, Melanie; Luessem, Georg; Hock, Christian

PA Merck Patent G.m.b.H., Germany

SO Ger. Offen., 154 pp.

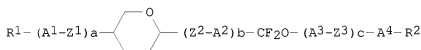
CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10353658	A1	20040609	DE 2003-10353658	20031117
	WO 2004048501	A1	20040610	WO 2003-EP12813	20031117
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	AU 2003302394	A1	20040618	AU 2003-302394	20031117
	EP 1565540	A1	20050824	EP 2003-811758	20031117
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	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
	CN 1717468	A	20060104	CN 2003-80104414	20031117
	JP 2006508150	T	20060309	JP 2004-554363	20031117
	AT 374232	T	20071015	AT 2003-811758	20031117
	US 20060061699	A1	20060323	US 2005-536808	20050527
	US 7291367	B2	20071106		
FRAI	DE 2002-10255311	A1	20021127		
	WO 2003-EP12813	W	20031117		
OS	MARPAT 141:44938				
GI					



I

AB The title liquid crystalline compound is represented by a general formula I (R1, R2

= H, halo, C1-15-alkyl, alkoxy; A1-4 = 1,4-trans-cyclohexylene, 1,4-phenylene, etc.; Z1-3 = -COO-, -OCO-, -CF2O-, etc.; a, b, c = 0-3; a + b + c ≤ 3). Synthesis examples and 45 mixture examples are given.

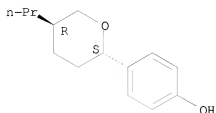
IT 700863-32-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of liquid crystalline compound suitable for liquid crystal mixture of liquid crystal display)

RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)

Relative stereochemistry.



=>

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NEWS 17 MAR 31 LPCI now available as a replacement to LDPCI

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NEWS 19 APR 04 STN AnaVist, Version 1, to be discontinued

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NEWS 21 APR 28 EMBASE Controlled Term thesaurus enhanced

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NEWS 23 MAY 30 INPAFAMDB now available on STN for patent family searching

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NEWS 26 JUN 06 KOREAPAT updated with 41,000 documents

NEWS 27 JUN 13 USPATFULL and USPAT2 updated with 11-character patent numbers for U.S. applications

NEWS 28 JUN 19 CAS REGISTRY includes selected substances from web-based collections

NEWS 29 JUN 25 CA/Caplus and USPAT databases updated with IPC reclassification data

NEWS 30 JUN 30 AEROSPACE enhanced with more than 1 million U.S. patent records

NEWS 31 JUN 30 EMBASE, EMBAL, and LEMBASE updated with additional options to display authors and affiliated organizations

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NEWS 33 JUN 30 STN AnaVist enhanced with database content from EPFULL

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AND CURRENT DISCOVER FILE IS DATED 23 JUNE 2008.

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=> fil reg		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
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STRUCTURE FILE UPDATES: 14 JUL 2008 HIGHEST RN 1034013-75-6
 DICTIONARY FILE UPDATES: 14 JUL 2008 HIGHEST RN 1034013-75-6

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TSCA INFORMATION NOW CURRENT THROUGH January 9, 2008.

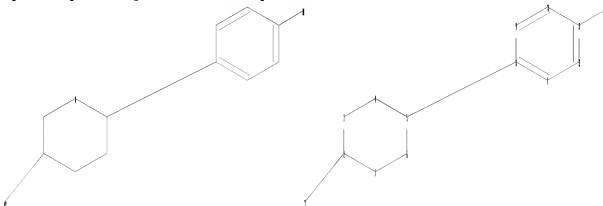
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<http://www.cas.org/support/stngen/stdnoc/properties.html>

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chain nodes :

13 14

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12

chain bonds :

2-13 5-8 11-14

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

exact/norm bonds :

11-14

exact bonds :

1-2 1-6 2-3 2-13 3-4 4-5 5-6 5-8

normalized bonds :
 7-8 7-12 8-9 9-10 10-11 11-12
 isolated ring systems :
 containing 1 : 7 :

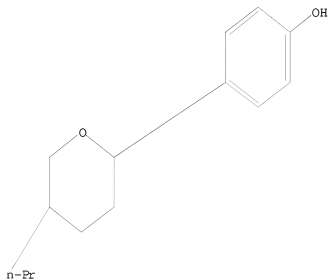
Hydrogen count :
 1:>= minimum 1 3:>= minimum 1 6:>= minimum 1 7:>= minimum 1 9:>= minimum 1
 10:>=
 minimum 1 12:>= minimum 1
 Match level :
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
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L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR



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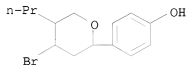
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 FULL SCREEN SEARCH COMPLETED - 4492 TO ITERATE

100.0% PROCESSED 4492 ITERATIONS 4 ANSWERS
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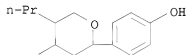
L2 ANSWER 1 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN
 RN 916155-03-8 REGISTRY
 ED Entered STN: 21 Dec 2006
 CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)
 MF C14 H19 Br O2
 SR CA
 LC STN Files: CA, CAPLUS



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1907 TO DATE)
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN
 RN 879544-24-8 REGISTRY
 ED Entered STN: 06 Apr 2006
 CN Phenol, 4-(tetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)
 MF C14 H20 O2
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT



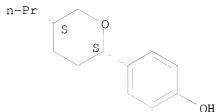
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN
 RN 879544-22-6 REGISTRY
 ED Entered STN: 06 Apr 2006
 CN Phenol, 4-[(2R,5R)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)
 FS STEREOSEARCH
 MF C14 H20 O2
 SR CA

LC STN Files: CA, CAPLUS, CASREACT

Relative stereochemistry.

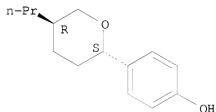


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2008 ACS on STN
RN 700863-32-7 REGISTRY
ED Entered SIN: 29 Jun 2004
CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
NAME)
FS STEREOSEARCH
MF C14 H20 O2
SR CA
LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

Relative stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

6 REFERENCES IN FILE CA (1907 TO DATE)
6 REFERENCES IN FILE CAPLUS (1907 TO DATE)

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COST IN U.S. DOLLARS
FULL ESTIMATED COST

SINCE FILE	TOTAL
ENTRY	SESSION
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 FILE LAST UPDATED: 14 Jul 2008 (20080714/ED)

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<http://www.cas.org/legal/infopolicy.html>

=> s 12

L3 6 L2

=> d 1-6 bib abs hitstr

L3 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2006:1252591 CAPLUS <<LOGINID:20080715>>

DN 146:36423

TI Method for producing 2,5-substituted tetrahydropyran derivatives by reductive elimination of the corresponding 4-halogen derivative

IN Poetsch, Eike; Binder, Werner; Lehmann, Stefan; Bensinger, Dieter

PA Merck Patent G.m.b.H., Germany

SO PCT Int. Appl., 72pp.

CODEN: PIXXD2

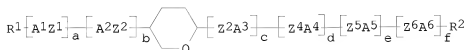
DT Patent

LA German

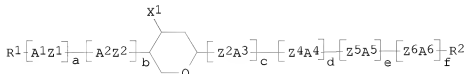
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 20061252526	A1	20061130	WO 2006-EP4387	20060510
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	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,				

	CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	CN 101180287	A	20080514	CN 2006-80017968
	KR 2008019018	A	20080229	20071123
PRAI	EP 2005-11323	A	20050525	KR 2007-730162
	WO 2006-EP4387	W	20060510	20071224
OS	MARPAT 146:36423			
GI				



I



II

AB The invention relates to a method for producing the tetrahydropyran derivs. I, characterized by subjecting a tetrahydropyran derivative II to a reductive elimination of substituent X1, whereby X1 represents Cl, Br, or I. In the general formulas, a, b, c, d, e, and f are independently 0 or 1, and a + b + c + d + e + f equals 0, 1, 2, 3, or 4; R1 is H, halogen, -CN, a C1-C15 alkyl optionally singly substituted with -CN and optionally multiply substituted with -C.tplbond.C-, -CH=CH-, -O-, -S-, -SO-, -SO2-, -CO-O-, or -O-CO-, with no two O atoms adjacent; R2 is independently H, halogen, -CN, -NCS, -NO2, -OH, -SF5, -O-Aralkyl, a C1-C15 alkyl optionally singly substituted with -CN or optionally multiply substituted with halogen, -OH, -O-Aralkyl, -C.tplbond.C-, -CH=CH-, -O-, -S-, -SO-, -SO2-, -CO-O-, or -O-CO-, with no two O atoms adjacent. In the same general formulas, all A groups are 1,4-substituted cyclohexanes or cyclohexenes, 2,5-substituted pyran, 1,3-substituted cyclobutane, a chain of two or three 1,3-connected cyclobutanes, or various ring systems; Z1 is a simple bond, an optionally substituted with F or Cl C1-C6 alkyl bridge, -CH2O-, -OCH2-, or -CF2O-; Z2 is a simple bond, or a C1-C6 alkyl bridge optionally substituted with F, Cl, or both; and Z3, Z4, Z5, and Z6 are the same as Z1, except no -CF2O- bridge may be connected over its O-atom directly to a cyclohexylene ring. The tetrahydropyran derivs. function as mesogens in liquid crystal applications and have after synthesis the proper stereochem., in part or in entirety.

IT 700863-32-7P

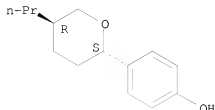
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(method for producing substituted tetrahydropyran derivs. by reductive
elimination of corresponding 4-halogen derivative)

RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX

(NAME)

Relative stereochemistry.

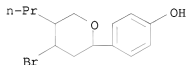


IT 916155-03-8

RL: RCT (Reactant); RACT (Reactant or reagent)
 (method for producing substituted tetrahydropyran derivs. by reductive
 elimination of corresponding 4-halogen derivative)

RN 916155-03-8 CAPLUS

CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2006:1252349 CAPLUS <<LOGINID::20080715>>

DN 146:36421

TI Method for producing halogenated tetrahydropyran derivatives for liquid
 crystal applications

IN Poetsch, Eike; Binder, Werner; Kirschbaum, Michael; Schaefer, Ralf;
 Bensinger, Dieter; Nothnagel, Guenther

PA Merck Patent G.m.b.H., Germany

SO PCT Int. Appl., 80pp.

CODEN: PIXXD2

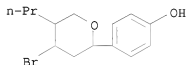
DT Patent

LA German

FAN.CNT 1

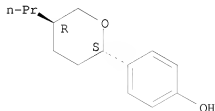
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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VN, YU, ZA, ZM, ZW
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM
 CN 101180286 A 20080514 CN 2006-80017926 20071123
 KR 2008019019 A 20080229 KR 2007-730166 20071224
 PRAI EP 2005-11325 A 20050525
 WO 2006-EP4388 W 20060510
 OS MARPAT 146:36421
 AB The invention relates to a method for producing tetrahydropyran derivs.,
 to the tetrahydropyran derivs., and to the use of the tetrahydropyran
 derivative for producing other tetrahydropyran derivs. The invention relates
 in particular to producing halogenated tetrahydropyran derivs. Synthetic
 methods are described for producing 2,5-disubstituted tetrahydropyran
 derivs. that can serve as mesogens in liquid crystal applications. The
 tetrahydropyran derivs. will already possess the desired stereochem.
 partly or entirely.
 IT 916155-03-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (method for producing halogenated hydroxyran derivs. for liquid crystal
 applications)
 RN 916155-03-8 CAPLUS
 CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



IT 700863-32-7P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (method for producing halogenated hydroxyran derivs. for liquid crystal
 applications)
 RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)

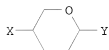
Relative stereochemistry.



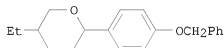
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2006:238162 CAPLUS <<LOGINID::20080715>>
DN 144:311909
TI Preparation of trans-2,5-disubstituted tetrahydropyrans
IN Wagner, Robert; Kirschbaum, Michael; Poetsch, Eike; Bensinger, Dieter;
Mueller, Sebastian; Meyer, Volker
PA Merck Patent GmbH, Germany
SO Ger. Offen., 13 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 102005032800	A1	20060316	DE 2005-102005032800	20050714
PRAI	DE 2004-102004037514	IA	20040803		
OS	CASREACT 144:311909				
GI					



I



II

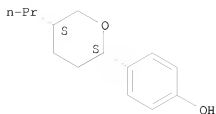
AB A process for the preparation of title compds. I [X = (Z1-A1)a-R1; Y = (Z2-A2)b-R2; A1, A2 = 1,4-cycloalkylene, 1,4-phenylene, 2,6-naphthyldiyl (sic), etc.; a, b = 0-2; R1, R2 = (un)substituted alkyl with provisos; Z1, Z2 = CH2CH2, (CH2)4, OCF2, etc.] via the isomerization of cis-2,5-disubstituted tetrahydropyrans was disclosed. For example, tribromobismuthine mediated isomerization of a mixture of cis:trans tetrahydropyran II (48:50) in DCM afforded the trans-isomer of tetrahydropyran II in 87%.

IT 879544-22-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of trans-2,5-disubstituted tetrahydropyrans)

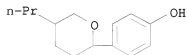
RN 879544-22-6 CAPLUS

CN Phenol, 4-[(2R,5R)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.

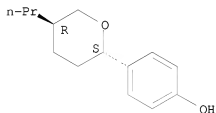


IT 879544-24-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation of trans-2,5-disubstituted tetrahydropyrans)
 RN 879544-24-8 CAPLUS
 CN Phenol, 4-(tetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



IT 700863-32-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of trans-2,5-disubstituted tetrahydropyrans)
 RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)

Relative stereochemistry.



L3 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2004:1035071 CAPLUS <<LOGINID::20080715>>
 DN 142:30170
 TI Pyrans as liquid crystals for electrooptical and display devices
 IN Goulding, Mark John; Duffy, Warren; Adlem, Kevin; Kirsch, Peer; Hahn,
 Alexander; Poetsch, Eike; Binder, Werner; Meyer, Volker; Klasen-Memmer,
 Melanie; Heckmeier, Michael; Luessem, Georg
 PA Merck Patent GmbH, Germany
 SO Eur. Pat. Appl., 22 pp.

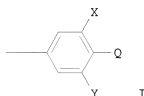
CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1482021	A1	20041201	EP 2004-12212	20040524
	EP 1482021	B1	20070124		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	AT 352602	T	20070215	AT 2004-12212	20040524
	US 20050012073	A1	20050120	US 2004-854773	20040527
	US 7022865	B2	20060404		
PRAI	EP 2003-11906	A	20030527		
OS	MARPAT 142:30170				
GI					

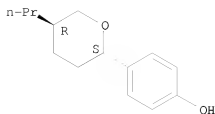


AB Tetrahydropyran derivs. comprising at least three cyclic rings and one aromatic end group of the formula I (X, Y = H, F, with the proviso that at least one of X and Y is F; Q = H, -CN, -NCS, -F, -Cl, -CF₃, -OCF₃, -OCHF₂, -OCHF₂CF₃, SF₅ or -OCF₂CF₃); a process for preparing said tetrahydropyran derivs., and the use of said tetrahydropyran derivs. as a component in a liquid crystal composition The object of the present invention is to provide

new tetrahydropyran derivs. which are suitable as components in liquid crystalline compns. and display devices, especially in nematic media having a balanced profile of the following properties: rotational viscosity, dielec. anisotropy and holding ratio; and having a good solubility for other components of liquid crystal compns. and a high pos. dielec. anisotropy.

IT 700863-32-7P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of liquid crystals for electrooptical and display devices)
 RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

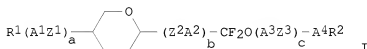
Relative stereochemistry.



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2008 ACS on SIN
AN 2004:962862 CAPLUS <<LOGINID::20080715>>
DN 141:403631
TI Liquid crystal compound and liquid crystal mixture showing improved
physical properties for liquid crystal display
IN Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Meyer, Volker; Heckmeier,
Michael; Klasen-Memmer, Melanie; Luessem, Georg; Hock, Christian
PA Merck Patent GmbH, Germany
SO Ger. Offen., 100 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PRAI	DE 2003-10318420		20030424		
OS	MARPAT 141:403631				
GI					

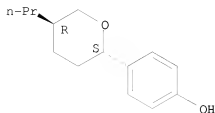


AB The title liquid crystal compound is represented by I (R1, R2 = H, halo, C1-15-alkyl, alkoxy; A1-4 = trans-1,4-cyclohexylene, 1,4-phenylene, etc.; Z1-3 = -COO-, -OCO-, -CF2O-, -OCF2-, etc.; a, b, c = 0-3). There are synthesis examples as well as 11 liquid crystal mixture examples.

IT 700863-32-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of liquid crystal compound and liquid crystal mixture showing improved phys. properties for liquid crystal display)

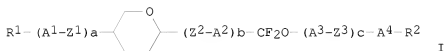
RN 700863-32-7 CAPLUS
CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



L3 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2004:466725 CAPLUS <<LOGINID::20080715>>
 DN 141:44938
 TI Liquid crystalline compound suitable for liquid crystal mixture of liquid
 crystal display
 IN Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Meyer, Volker; Heckmeier,
 Michael; Klasen-Memmer, Melanie; Luessem, Georg; Hock, Christian
 PA Merck Patent G.m.b.H., Germany
 SO Ger. Offen., 154 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10353658	A1	20040609	DE 2003-10353658	20031117
	WO 2004048501	A1	20040610	WO 2003-EP12813	20031117
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	AU 2003302394	A1	20040618	AU 2003-302394	20031117
	EP 1565540	A1	20050824	EP 2003-811758	20031117
	EP 1565540	B1	20070926		
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
	CN 1717468	A	20060104	CN 2003-80104414	20031117
	JP 2006508150	T	20060309	JP 2004-554363	20031117
	AT 374232	T	20071015	AT 2003-811758	20031117
	US 20060061699	A1	20060323	US 2005-536808	20050527
	US 7291367	B2	20071106		
PRAI	DE 2002-10255311	A1	20021127		
	WO 2003-EP12813	W	20031117		
OS	MARPAT 141:44938				
GI					



AB The title liquid crystalline compound is represented by a general formula I
(R1, R2

= H, halo, C1-15-alkyl, alkoxy; A1-4 = 1,4-trans-cyclohexylene,
1,4-phenylene, etc.; Z1-3 = -COO-, -OCO-, -CF2O-, etc.; a, b, c = 0-3; a +
b + c ≤ 3). Synthesis examples and 45 mixture examples are given.

IT 700863-32-7P

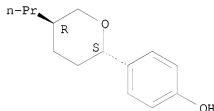
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(preparation of liquid crystalline compound suitable for liquid crystal
mixture of liquid
crystal display)

RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
NAME)

Relative stereochemistry.



=> fil reg

COST IN U.S. DOLLARS

SINCE FILE TOTAL

ENTRY SESSION

FULL ESTIMATED COST

34.14 220.71

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE TOTAL

ENTRY SESSION

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 DICTIONARY FILE UPDATES: 14 JUL 2008 HIGHEST RN 1034013-75-6

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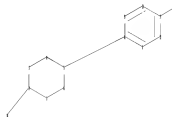
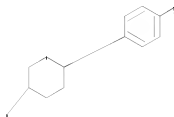
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Uploading C:\Program Files\Stnexp\Queries\rkk803b.str



chain nodes :
 13 14
 ring nodes :

```

1  2  3  4  5  6  7  8  9  10  11  12
chain bonds :
2-13  5-8  11-14
ring bonds :
1-2  1-6  2-3  3-4  4-5  5-6  7-8  7-12  8-9  9-10  10-11  11-12
exact/norm bonds :
2-13  11-14
exact bonds :
1-2  1-6  2-3  3-4  4-5  5-6  5-8
normalized bonds :
7-8  7-12  8-9  9-10  10-11  11-12
isolated ring systems :
containing 1 : 7 :

```

G1:OH,SH,CN,OSO3H,Cl,Br,F,I

```

Hydrogen count :
1:>= minimum 1  3:>= minimum 1  6:>= minimum 1  7:>= minimum 1  9:>= minimum 1
10:>=
minimum 1  12:>= minimum 1
Match level :
1:Atom  2:Atom  3:Atom  4:Atom  5:Atom  6:Atom  7:Atom  8:Atom  9:Atom  10:Atom
11:Atom  12:Atom  13:CLASS  14:CLASS

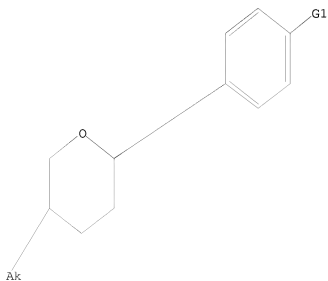
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L4 STRUCTURE UPLOADED

=> d

L4 HAS NO ANSWERS

L4 STR



G1 OH,SH,CN,OSO3H,Cl,Br,F,I

Structure attributes must be viewed using STN Express query preparation.

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=> s l4 ful
FULL SEARCH INITIATED 19:57:41 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 57439 TO ITERATE

100.0% PROCESSED 57439 ITERATIONS 34 ANSWERS
SEARCH TIME: 00.00.01

L5 34 SEA SSS FUL L4

=> fil caplus
COST IN U.S. DOLLARS SINCE FILE TOTAL
ENTRY SESSION
FULL ESTIMATED COST 180.66 401.37

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) SINCE FILE TOTAL
ENTRY SESSION
CA SUBSCRIBER PRICE 0.00 -4.80

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FILE COVERS 1907 - 15 Jul 2008 VOL 149 ISS 3
FILE LAST UPDATED: 14 Jul 2008 (20080714/ED)
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Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

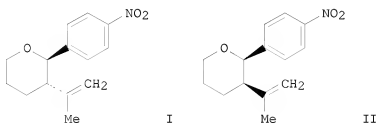
<http://www.cas.org/legal/infopolicy.html>

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L6 22 L5

=> d 1-22 bib abs hitstr

L6 ANSWER 1 OF 22 CAPLUS COPYRIGHT 2008 ACS ON STN
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AN 2008:354188 CAPLUS <<LOGINID::20080715>>
 DN 148:538015
 TI Platinum(II)-catalyzed annulation of 5-methyl-5-hexen-1-ols with aldehydes
 AU Miura, Katsukiyo; Horiike, Makoto; Inoue, Gen; Ichikawa, Junji; Hosomi, Akira
 CS Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, 305-8571, Japan
 SO Chemistry Letters (2008), 37(3), 270-271
 CODEN: CMLTAG; ISSN: 0366-7022
 PB Chemical Society of Japan
 DT Journal
 LA English
 GI

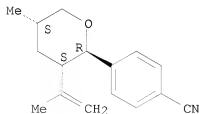


AB In the presence of catalytic amts. of PtCl₂ and AgOTf, 5-methyl-5-hexen-1-ol reacted with aldehydes to give 2,3-disubstituted tetrahydropyrans in moderate to high yields with trans stereoselectivity. E.g., in the presence of PtCl₂ and AgOTf, reaction of 5-methyl-5-hexen-1-ol and 4-nitrobenzaldehyde gave 77% trans-tetrahydropyran I and 7% cis-tetrahydropyran II. Use of 5-methyl-5-hexen-1-ols bearing a Me group at the C1-, C2-, or C3-position led to highly stereoselective synthesis of trisubstituted tetrahydropyrans.

IT 1023711-89-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (stereoselective preparation of tetrahydropyrans by PtCl₂/AgOTf-catalyzed annulation of 5-methyl-5-hexen-1-ols with aldehydes)

RN 1023711-89-8 CAPLUS
 CN Benzonitrile, 4-[(2R,3S,5S)-tetrahydro-5-methyl-3-(1-methylethenyl)-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

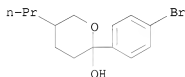
Relative stereochemistry.



RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

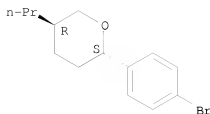
L6 ANSWER 2 OF 22 CAPLUS COPYRIGHT 2008 ACS ON STN
AN 2007:85819 CAPLUS <<LOGINID::20080715>>
DN 146:184355
TI Procedure for the production of tetrahydropyrans from 3-oxetanes and imino
enolates using Lewis acid mediated addition reaction
IN Kirsch, Peer; Maillard, David
PA Merck Patent GmbH, Germany
SO Ger. Offen., 13pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 102006028618	A1	20070125	DE 2006-102006028618	20060622
PRAI	DE 2005-102005033106	IA	20050715		
AB	The invention concerns a procedure for the production of 2,5-disubstituted tetrahydropyrans, on the basis of 3-substituted oxetanes and imino enolates. 3-Substituted oxetanes underwent addition of imino enolates under Lewis acid mediated condition to give 2,5-disubstituted tetrahydropyran-2-ols. The 2,5-disubstituted tetrahydropyran-2-ols underwent reductive dehydroxylation to give desired 2,5-disubstituted tetrahydropyrans as the trans-stereoisomers.				
IT	911142-61-5P RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation of tetrahydropyrans via Lewis acid-mediated addition of imino enolates to oxetanes)				
RN	911142-61-5 CAPLUS				
CN	2H-Pyran-2-ol, 2-(4-bromophenyl)tetrahydro-5-propyl- (CA INDEX NAME)				



IT 700863-30-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of tetrahydropyrans via Lewis acid-mediated addition of imino enolates to oxetanes)
RN 700863-30-5 CAPLUS
CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-propyl-, (2R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 3 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2006:1252591 CAPLUS <<LOGINID:20080715>>

DN 146:36423

TI Method for producing 2,5-substituted tetrahydropyran derivatives by reductive elimination of the corresponding 4-halogen derivative

IN Poetsch, Eike; Binder, Werner; Lehmann, Stefan; Bensinger, Dieter

PA Merck Patent G.m.b.H., Germany

SO PCT Int. Appl., 72pp.

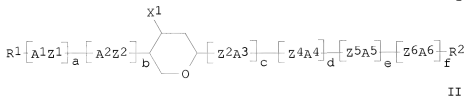
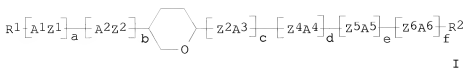
CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	CN 101180287	A	20080514	CN 2006-80017968	20071123
	KR 2008019018	A	20080229	KR 2007-730162	20071224
PRAI	EP 2005-11323	A	20050525		
	WO 2006-EP4387	W	20060510		
OS	MARPAT 146:36423				
GI					



AB The invention relates to a method for producing the tetrahydropyran derivs. I, characterized by subjecting a tetrahydropyran derivative II to a reductive elimination of substituent X1, whereby X1 represents Cl, Br, or I. In the general formulas, a, b, c, d, e, and f are independently 0 or 1, and a + b + c + d + e + f equals 0, 1, 2, 3, or 4; R1 is H, halogen, -CN, a C1-C15 alkyl optionally singly substituted with -CN and optionally multiply substituted with -C.tplbond.C-, -CH=CH-, -O-, -S-, -SO-, -SO2-, -CO-O-, or -O-CO-, with no two O atoms adjacent; R2 is independently H, halogen, -CN, -NCS, -NO2, -OH, -SF5, -O-Aralkyl, a C1-C15 alkyl optionally singly substituted with -CN or optionally multiply substituted with halogen, -OH, -O-Aralkyl, -C.tplbond.C-, -CH=CH-, -O-, -S-, -SO-, -SO2-, -CO-O-, or -O-CO-, with no two O atoms adjacent. In the same general formulas, all A groups are 1,4-substituted cyclohexanes or cyclohexenes, 2,5-substituted pyran, 1,3-substituted cyclobutane, a chain of two or three 1,3-connected cyclobutanes, or various ring systems; Z1 is a simple bond, an optionally substituted with F or Cl C1-C6 alkyl bridge, -CH2O-, -OCH2-, or -CF2O-; Z2 is a simple bond, or a C1-C6 alkyl bridge optionally substituted with F, Cl, or both; and Z3, Z4, Z5, and Z6 are the same as Z1, except no -CF2O- bridge may be connected over its O-atom directly to a cyclohexylene ring. The tetrahydropyran derivs. function as mesogens in liquid crystal applications and have after synthesis the proper stereochem., in part or in entirety.

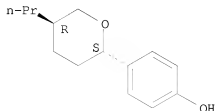
IT 700863-32-7P 916155-28-7P 916155-30-1P
916155-31-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(method for producing substituted hydropyran derivs. by reductive
elimination of corresponding 4-halogen derivative)

RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
NAME)

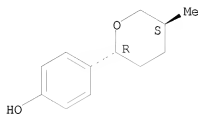
Relative stereochemistry.



RN 916155-28-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-methyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

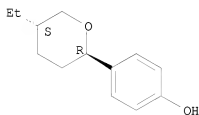
Relative stereochemistry.



RN 916155-30-1 CAPLUS

CN Phenol, 4-[(2R,5S)-5-ethyltetrahydro-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

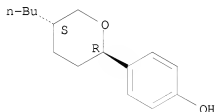
Relative stereochemistry.



RN 916155-31-2 CAPLUS

CN Phenol, 4-[(2R,5S)-5-butyltetrahydro-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



IT 916155-02-7 916155-03-8 916155-04-9

916155-21-0 916155-27-6

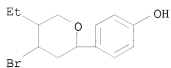
RL: RCT (Reactant); RACT (Reactant or reagent)

(method for producing substituted hydropyran derivs. by reductive

elimination of corresponding 4-halogen derivative)

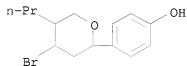
RN 916155-02-7 CAPLUS

CN Phenol, 4-(4-bromo-5-ethyltetrahydro-2H-pyran-2-yl)- (CA INDEX NAME)



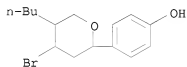
RN 916155-03-8 CAPLUS

CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



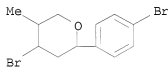
RN 916155-04-9 CAPLUS

CN Phenol, 4-(4-bromo-5-butyltetrahydro-2H-pyran-2-yl)- (CA INDEX NAME)



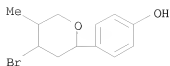
RN 916155-21-0 CAPLUS

CN 2H-Pyran, 4-bromo-2-(4-bromophenyl)tetrahydro-5-methyl- (CA INDEX NAME)



RN 916155-27-6 CAPLUS

CN Phenol, 4-(4-bromotetrahydro-5-methyl-2H-pyran-2-yl)- (CA INDEX NAME)



IT 916235-98-8P

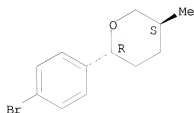
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(method for producing substituted tetrahydropyran derivs. by reductive elimination of corresponding 4-halogen derivative)

RN 916235-98-8 CAPLUS

CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-methyl-, (2R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2006:1252349 CAPLUS <<LOGINID::20080715>>

DN 146:36421

TI Method for producing halogenated tetrahydropyran derivatives for liquid crystal applications

IN Poetsch, Eike; Binder, Werner; Kirschbaum, Michael; Schaefer, Ralf; Bensinger, Dieter; Nothnagel, Guenther

PA Merck Patent G.m.b.H., Germany

SO PCT Int. Appl., 80pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006125527	A1	20061130	WO 2006-EP4388	20060510
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
 CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG, BW, GH,
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM

	CN 101180286	A	20080514	CN 2006-80017926	20071123
	KR 2008019019	A	20080229	KR 2007-730166	20071224
PRAI	EP 2005-11325	A	20050525		
	WO 2006-EP4388	W	20060510		

OS MARPAT 146:36421

AB The invention relates to a method for producing tetrahydropyran derivs., to the tetrahydropyran derivs., and to the use of the tetrahydropyran derivative for producing other tetrahydropyran derivs. The invention relates in particular to producing halogenated tetrahydropyran derivs. Synthetic methods are described for producing 2,5-disubstituted tetrahydropyran derivs. that can serve as mesogens in liquid crystal applications. The tetrahydropyran derivs. will already possess the desired stereochem. partly or entirely.

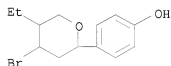
IT 916155-02-7P 916155-03-8P 916155-04-9P

916155-21-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (method for producing halogenated hydropyran derivs. for liquid crystal applications)

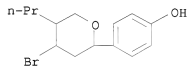
RN 916155-02-7 CAPLUS

CN Phenol, 4-(4-bromo-5-ethyltetrahydro-2H-pyran-2-yl)- (CA INDEX NAME)



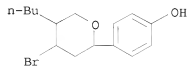
RN 916155-03-8 CAPLUS

CN Phenol, 4-(4-bromotetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)

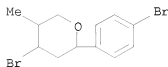


RN 916155-04-9 CAPLUS

CN Phenol, 4-(4-bromo-5-butyltetrahydro-2H-pyran-2-yl)- (CA INDEX NAME)

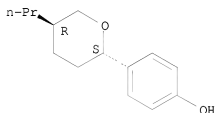


RN 916155-21-0 CAPLUS
 CN 2H-Pyran, 4-bromo-2-(4-bromophenyl)tetrahydro-5-methyl- (CA INDEX NAME)



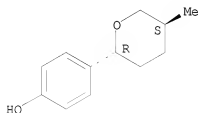
IT 700863-32-7P 916155-28-7P 916155-30-1P
 916155-31-2P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (method for producing halogenated hydropyran derivs. for liquid crystal
 applications)
 RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)

Relative stereochemistry.



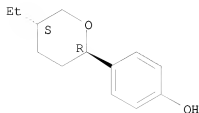
RN 916155-28-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-5-methyl-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)

Relative stereochemistry.



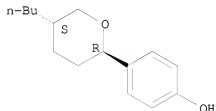
RN 916155-30-1 CAPLUS
 CN Phenol, 4-[(2R,5S)-5-ethyltetrahydro-2H-pyran-2-yl]-, rel- (CA INDEX
 NAME)

Relative stereochemistry.

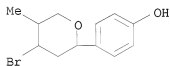


RN 916155-31-2 CAPLUS
 CN Phenol, 4-[(2R,5S)-5-butyltetrahydro-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



IT 916155-27-6
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (method for producing halogenated hydropyran derivs. for liquid crystal applications)
 RN 916155-27-6 CAPLUS
 CN Phenol, 4-(4-bromotetrahydro-5-methyl-2H-pyran-2-yl)- (CA INDEX NAME)



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 22 CAPLUS COPYRIGHT 2008 ACS ON STN
 AN 2006:1250462 CAPLUS <<LOGINID::20080715>>
 DN 146:16407
 TI Liquid crystalline medium and electrooptical liquid crystal display
 IN Wittek, Michael; Lietzau, Lars; Poetsch, Eike; Czanta, Markus
 PA Merck Patent G.m.b.H., Germany

SO Ger. Offen., 48pp.

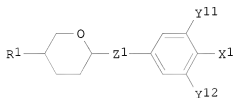
CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 102006020181	A1	20061130	DE 2006-102006020181	20060502
	DE 102006023335	A1	20061130	DE 2006-102006023335	20060518
	JP 2006328400	A	20061207	JP 2006-144876	20060525
PRAI	DE 2005-102005024613	IA	20050525		
OS	MARPAT 146:16407				
GI					



I

AB The present invention relates to nematic liquid crystalline media containing one or

more compds. represented by I (R1 = H, C1-7-alkyl, alkoxy, C2-7-alkenyl, alkenyloxy, alkynyl, alkynyloxy; Z1 = -CH2CH2-, -CH2O-, -CF2O-, -COO-, -OCO-, single bond; X1 = halo, C1-5-fluoroalkyl, fluoroalkoxy, C2-4-fluoroalkenyl, alkenyloxy, oxaalkyl; Y11, Y12 = H, F) and to electrooptical (TN-, OCB-, or IPS-) liquid crystal displays using the same.

IT 915716-78-8 915716-79-9

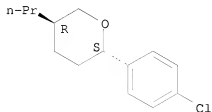
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(liquid crystal mixture; nematic liquid crystalline medium and electrooptical liquid crystal display)

RN 915716-78-8 CAPLUS

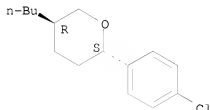
CN 2H-Pyran, 2-(4-chlorophenyl)tetrahydro-5-propyl-, (2R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.



RN 915716-79-9 CAPLUS
 CN 2H-Pyran, 5-butyl-2-(4-chlorophenyl)tetrahydro-, (2R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 6 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2006:1118154 CAPLUS <<LOGINID::20080715>>
 DN 145:443780
 TI Nitric oxide (NO) formation inhibitory compounds, their manufacture by extraction from Alpinia galanga, and antiallergy agents containing them
 IN Yoshikawa, Masayuki; Matsuda, Hisashi; Muraoka, Osamu
 PA Kinki University, Japan; Diabetym Co., Ltd.
 SO Jpn. Kokai Tokkyo Koho, 12pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese

FAN.CNT 1

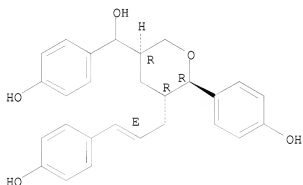
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2006290847	A	20061026	JP 2005-117581	20050414
PRAI JP 2005-117581		20050414		

AB Galanganol (I), galanganol A (II), galanganol B (III), and galanganol C (IV) are manufactured by chromatog. fractionation of exts. obtained by extraction of rhizome of Alpinia galanga with an aqueous solution containing ≥ 15 weight% Me2CO or lower alcs. I, II (enantiomeric mixture), III (enantiomeric mixture), and IV (enantiomeric mixture) were purified from 80% aqueous Me2CO extract of rhizome of A. galanga, and their structures were elucidated. I, III, and IV inhibited NO formation in cultured mouse cells with IC50 of 68, 88, and 33 μ M, resp.

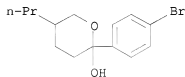
IT 864073-18-7P, Galanganol C
 RL: NPO (Natural product occurrence); PAC (Pharmacological activity); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
 (extraction of nitric oxide (NO) formation inhibitory galanganol and galanganols A-C from rhizome of Alpinia galanga for antiallergy agents)

RN 864073-18-7 CAPLUS
 CN 2H-Pyran-3-methanol, tetrahydro- α ,6-bis(4-hydroxyphenyl)-5-[(2E)-3-(4-hydroxyphenyl)-2-propen-1-yl]-, (3R,5R,6R)-rel- (CA INDEX NAME)

Relative stereochemistry.
Double bond geometry as shown.
Currently available stereo shown.

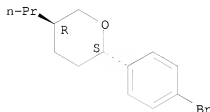


L6 ANSWER 7 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2006:809645 CAPLUS <<LOGINID::20080715>>
DN 145:408019
TI A convenient synthetic route to tetrahydropyran-based liquid crystals
AU Kirsch, Peer; Maillard, David
CS Technical Center Atsugi, Merck Ltd. Japan, 4084 Nakatsu, Aikawa-machi,
Aiko-gun, Kanagawa, 243-0303, Japan
SO European Journal of Organic Chemistry (2006), (15), 3326-3331
CODEN: EJOCFK; ISSN: 1434-193X
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
OS CASREACT 145:408019
AB The tetrahydropyran moiety was identified as a highly advantageous addition to the toolbox for the design of nematic liquid crystals for LCD applications. A new synthetic procedure based on the Lewis acid catalyzed ring opening of oxetanes by Li iminoenolates followed by reductive dehydroxylation of the resulting hemiketal provides a convenient preparative access to this class of materials.
IT 911142-61-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction with cyclohexylimine derivs.)
RN 911142-61-5 CAPLUS
CN 2H-Pyran-2-ol, 2-(4-bromophenyl)tetrahydro-5-propyl- (CA INDEX NAME)



IT 700863-30-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 RN 700863-30-5 CAPLUS
 CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-propyl-, (2R,5S)-rel- (CA INDEX
 NAME)

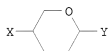
Relative stereochemistry.



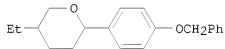
RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2006:238162 CAPLUS <<LOGINID::20080715>>
 DN 144:311909
 TI Preparation of trans-2,5-disubstituted tetrahydropyrans
 IN Wagner, Robert; Kirschbaum, Michael; Poetsch, Eike; Bensinger, Dieter;
 Mueller, Sebastian; Meyer, Volker
 PA Merck Patent GmbH, Germany
 SO Ger. Offen., 13 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 102005032800	A1	20060316	DE 2005-102005032800	20050714
PRAI	DE 2004-102004037514	IA	20040803		
OS	CASREACT 144:311909				
GI					



I



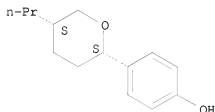
II

AB A process for the preparation of title compds. I [X = (Z1-A1)a-R1; Y = (Z2-A2)b-R2; A1, A2 = 1,4-cycloalkylene, 1,4-phenylene, 2,6-naphthyldiyl (sic), etc.; a, b = 0-2; R1, R2 = (un)substituted alkyl with provisos; Z1,

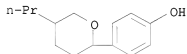
Z2 = CH2CH2, (CH2)4, OCF2, etc.] via the isomerization of cis-2,5-disubstituted tetrahydropyrans was disclosed. For example, tribromobismuthine mediated isomerization of a mixture of cis:trans tetrahydropyran II (48:50) in DCM afforded the trans-isomer of tetrahydropyran II in 87%.

IT 879544-22-6
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of trans-2,5-disubstituted tetrahydropyrans)
 RN 879544-22-6 CAPLUS
 CN Phenol, 4-[(2R,5R)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.

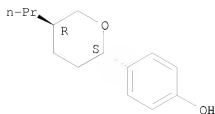


IT 879544-24-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of trans-2,5-disubstituted tetrahydropyrans)
 RN 879544-24-8 CAPLUS
 CN Phenol, 4-(tetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



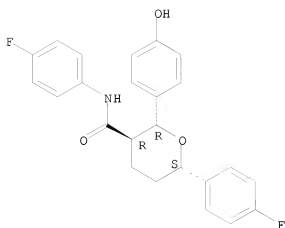
IT 700863-32-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of trans-2,5-disubstituted tetrahydropyrans)
 RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 9 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2005:1169884 CAPLUS <<LOGINID:20080715>>
 DN 144:263983
 TI (2R*,3R*,6S*)-N,6-Bis(4-fluorophenyl)-2-(4-hydroxyphenyl)-3,4,5,6-tetrahydro-2H-pyran-3-carboxamide
 AU Swamy, G. Y. S. K.; Ravikumar, K.; Wadhwa, L. K.; Saxena, Rahul; Singh, Saranjit
 CS Laboratory of X-ray Crystallography, Indian Institute of Chemical Technology, Hyderabad, 500 007, India
 SO Acta Crystallographica, Section E: Structure Reports Online (2005), E61(11), o3608-o3610
 CODEN: ACSEBH; ISSN: 1600-5368
 URL: <http://journals.iucr.org/e/issues/2005/11/00/bt6753/index.html>
 PB Blackwell Publishing Ltd.
 DT Journal; (online computer file)
 LA English
 AB The mol. of the title compound, C₂₄H₂₁F₂N₂O₂, has a T-shaped form in the crystal structure. The central tetrahydropyran ring shows a chair conformation. All substituents are equatorially attached to this ring. The crystal packing is stabilized by N-H...O, O-H...O and C-H... π (arene) interactions. Crystallog. data are given.
 IT 876948-89-9P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of)
 RN 876948-89-9 CAPLUS
 CN 2H-Pyran-3-carboxamide, N,6-bis(4-fluorophenyl)tetrahydro-2-(4-hydroxyphenyl)-, (2R,3R,6S)-rel- (CA INDEX NAME)

Relative stereochemistry.



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2005:640097 CAPLUS <<LOGINID::20080715>>

DN 143:282602

TI Inhibitors of nitric oxide production from the rhizomes of *Alpinia galanga*: Structures of new 8-9' linked neolignans and sesquiterpeneolignan
AU Morikawa, Toshio; Ando, Shin; Matsuda, Hisashi; Kataoka, Shinya; Muraoka, Osamu; Yoshikawa, Masayuki

CS Kyoto Pharmaceutical University, Kyoto, 607-8412, Japan

SO Chemical & Pharmaceutical Bulletin (2005), 53(6), 625-630

CODEN: CPBTAL; ISSN: 0009-2363

PB Pharmaceutical Society of Japan

DT Journal

LA English

AB The 80% aqueous acetone extract from the rhizomes of *Alpinia galanga* showed nitric oxide (NO) production inhibitory activities in mouse peritoneal macrophages. From the aqueous acetone extract, three new 8-9' linked neolignans,

galanganal, galanganols A and B, and a sesquiterpeneolignan, galanganol C, were isolated together with nine known phenylpropanoids and p-hydroxybenzaldehyde. The structures of new neolignans were determined on the basis of physicochem. and chemical evidence. In addition, the inhibitory effects of the constituents from the rhizomes of *A. galanga* on NO production induced by lipopolysaccharide in mouse peritoneal macrophages were examined. Among them, galanganal (IC₅₀=68 μM), galanganols B (88 μM) and C (33 μM), 1'S-1'-acetoxychavicol acetate (2.3 μM), 1'S-1'-acetoxyeugenol acetate (11 μM), trans-p-hydroxycinnamaldehyde (ca. 20 μM), trans-p-coumaryl alc. (72 μM), and trans-p-coumaryl diacetate (19 μM) were found to show inhibitory activity.

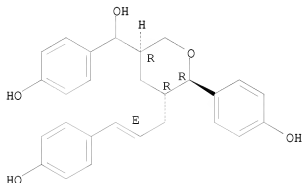
IT 864073-18-7P, Galanganol C

RL: BSU (Biological study, unclassified); NPO (Natural product occurrence); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)

(novel neolignans and a sesquiterpeneolignan from the rhizomes of *Alpinia galanga*)

RN 864073-18-7 CAPLUS
 CN 2H-Pyran-3-methanol, tetrahydro- α ,6-bis(4-hydroxyphenyl)-5-[(2E)-3-(4-hydroxyphenyl)-2-propen-1-yl]-, (3R,5R,6R)-rel- (CA INDEX NAME)

Relative stereochemistry.
 Double bond geometry as shown.
 Currently available stereo shown.



RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2005:215581 CAPLUS <<LOGINID::20080715>>

DN 142:297993

TI Procedure for the hydrogenation of cyclohexene and dihydropyran derivatives

IN Kralik, Joachim; Muermann, Christoph; Lehmann, Stefan; Poetsch, Eike; Meyer, Volker; Binder, Werner

PA Merck Patent GmbH, Germany

SO Ger. Offen., 24 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 102004036068	A1	20050310	DE 2004-102004036068	20040724
	CN 1626492	A	20050615	CN 2004-10057518	20040817
	JP 2005060399	A	20050310	JP 2004-237823	20040818
PRAI	DE 2003-10337836	1A	20030818		

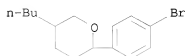
OS MARPAT 142:297993

AB Cyclohexene and dihydropyran derivs. are hydrogenation using a transition metal complex of triphenylphosphine. Thus, 1-(2,3-difluoro-4-ethoxyphenyl)-4-(4-propylcyclohexyl)cyclohexene was reduced with Rh(PPh₃)₃Cl to give 76% trans-1-(2,3-difluoro-4-ethoxyphenyl)-4-(4-propylcyclohexyl)cyclohexane.

IT 847461-52-3P

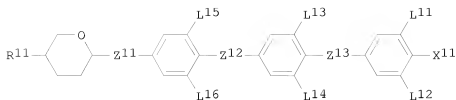
RL: SPN (Synthetic preparation); PREP (Preparation)
 (procedure for the hydrogenation of cyclohexene and dihydropyran derivs.)

RN 847461-52-3 CAPLUS
 CN 2H-Pyran, 2-(4-bromophenyl)-5-butyltetrahydro- (CA INDEX NAME)



L6 ANSWER 12 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2004:1059446 CAPLUS <<LOGINID:20080715>>
 DN 142:46069
 TI Liquid-crystalline compounds having a tetrahydropyran ring
 IN Kirsch, Peer; Poetsch, Eike; Manabe, Atsutaka
 PA Merck Patent G.m.b.H., Germany
 SO PCT Int. Appl., 74 pp.
 CODEN: PIXXD2
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004106460	A1	20041209	WO 2004-EP5539	20040524
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	DE 102004025809	A1	20041216	DE 2004-102004025809	20040524
	CN 1806028	A	20060719	CN 2004-80016747	20040524
	JP 2007507439	T	20070329	JP 2006-529903	20040524
	US 20060289829	A1	20061228	US 2005-558209	20051125
	US 7361388	B2	20080422		
PRAI	DE 2003-10324311	A	20030527		
	WO 2004-EP5539	W	20040524		
OS	MARPAT 142:46069				
GI					



I

AB The invention relates to liquid-crystalline compds. of formula I (R11 = H, C1-15-alkyl, alkoxy, C2-15-alkenyl, alkenylxoy; X11 = F, Cl, CN, NCS, SF5, C1-7-haloalkyl, haloalkoxy, haloalkenyl, haloalkenylxoy; Z11-13 = -C2H4-, -C.tplbond.C-, -C2F4-, -CHO-, -OCH-, -COO-, -CF:CF-, -CH:CH, -CH:CF-, -CF2O-, -OCF2-, -(CH2)4-, -(CH2)3-, single bond; L11-16 = H, F), and to a method for the production thereof, their use in liquid-crystalline media, liquid-crystalline media containing at least one above compound, and to electro-optical displays containing a liquid-crystalline medium of this type. There are one synthesis example

and one mixture example.

IT 700863-30-5P

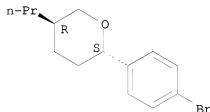
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(liquid crystal compound preparation; liquid-crystalline compds. having a tetrahydropyran ring for liquid crystal mixture suitable for liquid crystal display)

RN 700863-30-5 CAPLUS

CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-propyl-, (2R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:1035071 CAPLUS <<LOGINID:20080715>>

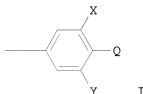
DN 142:30170

TI Pyrans as liquid crystals for electrooptical and display devices

IN Goulding, Mark John; Duffy, Warren; Adlem, Kevin; Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Binder, Werner; Meyer, Volker; Klasen-Memmer,

Melanie; Heckmeier, Michael; Luessem, Georg
 PA Merck Patent GmbH, Germany
 SO Eur. Pat. Appl., 22 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1482021	A1	20041201	EP 2004-12212	20040524
	EP 1482021	B1	20070124		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	AT 352602	T	20070215	AT 2004-12212	20040524
	US 20050012073	A1	20050120	US 2004-854773	20040527
	US 7022865	B2	20060404		
PRAI	EP 2003-11906	A	20030527		
OS	MARPAT 142:30170				
GI					



AB Tetrahydropyran derivs. comprising at least three cyclic rings and one aromatic end group of the formula I (X, Y = H, F, with the proviso that at least one of X and Y is F; Q = H, -CN, -NCS, -F, -Cl, -CF₃, -OCF₃, -OCHF₂, -OCHF₂CF₃, SF₅ or -OCF₂CF₃); a process for preparing said tetrahydropyran derivs., and the use of said tetrahydropyran derivs. as a component in a liquid crystal composition. The object of the present invention is to provide

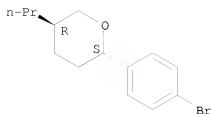
new tetrahydropyran derivs. which are suitable as components in liquid crystalline comps. and display devices, especially in nematic media having a balanced profile of the following properties: rotational viscosity, dielec. anisotropy and holding ratio; and having a good solubility for other components of liquid crystal comps. and a high pos. dielec. anisotropy.

IT 700863-30-5P 700863-32-7P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of liquid crystals for electrooptical and display devices)

RN 700863-30-5 CAPLUS

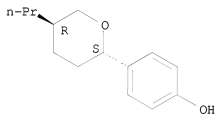
CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-propyl-, (2R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.



RN 700863-32-7 CAPLUS
 CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

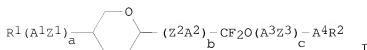
Relative stereochemistry.



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 14 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 2004:962862 CAPLUS <<LOGINID::20080715>>
 DN 141:403631
 TI Liquid crystal compound and liquid crystal mixture showing improved physical properties for liquid crystal display
 IN Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Meyer, Volker; Heckmeier, Michael; Klasen-Memmer, Melanie; Luessem, Georg; Hock, Christian
 PA Merck Patent GmbH, Germany
 SO Ger. Offen., 100 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10318420	A1	20041111	DE 2003-10318420	20030424
PRAI	DE 2003-10318420		20030424		
OS	MARPAT 141:403631				
GI					



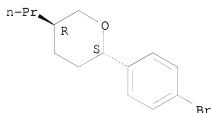
AB The title liquid crystal compound is represented by I (R1, R2 = H, halo, C1-15-alkyl, alkoxy; Al-4 = trans-1,4-cyclohexylene, 1,4-phenylene, etc.; Z1-3 = -COO-, -OCO-, -CF2O-, -OCF2-, etc.; a, b, c = 0-3). There are synthesis examples as well as 11 liquid crystal mixture examples.

IT 700863-30-5P 700863-32-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of liquid crystal compound and liquid crystal mixture showing improved phys. properties for liquid crystal display)

RN 700863-30-5 CAPLUS

CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-propyl-, (2R,5S)-rel- (CA INDEX NAME)

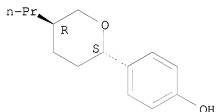
Relative stereochemistry.



RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 15 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:466725 CAPLUS <<LOGINID::20080715>>

DN 141:44938

TI Liquid crystalline compound suitable for liquid crystal mixture of liquid crystal display

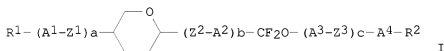
IN Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Meyer, Volker; Heckmeier, Michael; Klasen-Memmer, Melanie; Luessem, Georg; Hock, Christian

PA Merck Patent G.m.b.H., Germany

SO Ger. Offen., 154 pp.

CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10353658	A1	20040609	DE 2003-10353658	20031117
	WO 2004048501	A1	20040610	WO 2003-EP12813	20031117
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	AU 2003302394	A1	20040618	AU 2003-302394	20031117
	EP 1565540	A1	20050824	EP 2003-811758	20031117
	EP 1565540	B1	20070926		
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
	CN 1717468	A	20060104	CN 2003-80104414	20031117
	JP 2006508150	T	20060309	JP 2004-554363	20031117
	AT 374232	T	20071015	AT 2003-811758	20031117
	US 20060061699	A1	20060323	US 2005-536808	20050527
	US 7291367	B2	20071106		
PRAI	DE 2002-10255311	A1	20021127		
	WO 2003-EP12813	W	20031117		
OS	MARPAT 141:44938				
GI					



I

AB The title liquid crystalline compound is represented by a general formula I (R1, R2

= H, halo, C1-15-alkyl, alkoxy; A1-4 = 1,4-trans-cyclohexylene, 1,4-phenylene, etc.; Z1-3 = -COO-, -OCO-, -CF2O-, etc.; a, b, c = 0-3; a + b + c ≤ 3). Synthesis examples and 45 mixture examples are given.

IT 700863-30-5P 700863-32-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

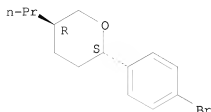
(preparation of liquid crystalline compound suitable for liquid crystal mixture of liquid

crystal display)

RN 700863-30-5 CAPLUS

CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-propyl-, (2R,5S)-rel- (CA INDEX NAME)

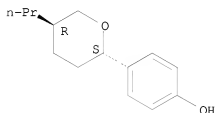
Relative stereochemistry.



RN 700863-32-7 CAPLUS

CN Phenol, 4-[(2R,5S)-tetrahydro-5-propyl-2H-pyran-2-yl]-, rel- (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 16 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:466724 CAPLUS <<LOGINID::20080715>>

DN 141:23420

TI Preparation of tetrahydropyran derivatives

IN Kirsch, Peer; Hahn, Alexander; Poetsch, Eike; Binder, Werner; Meyer, Volker

PA Merck Patent G.m.b.H., Germany

SO Ger. Offen., 31 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10353656	A1	20040609	DE 2003-10353656	20031117
	WO 2004048357	A1	20040610	WO 2003-EPI2812	20031117
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003288078	A1	20040618	AU 2003-288078	20031117
EP 1565450	A1	20050824	EP 2003-779946	20031117
EP 1565450	B1	20070704		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

CN 1717400	A	20060104	CN 2003-80104460	20031117
JP 2006515283	T	20060525	JP 2004-554362	20031117
AT 366247	T	20070715	AT 2003-779946	20031117
US 20060058527	A1	20060316	US 2005-536803	20050527

PRAI DE 2002-10255312 A1 20021127
 WO 2003-EP12812 W 20031117

OS CASREACT 141:23420; MARPAT 141:23420
 GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

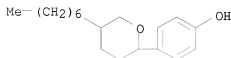
AB The invention concerns tetrahydropyran derivs. I [R11 = H, F, Cl, Br, I, CN, aryl, heterocyclyl, C1-15-alkyl {optionally containing internal, C.tplbond.C, CH:CH, O, C(:O), C(:O)O, O-C(:O)}, C1-15-haloalkyl; A = cyclohexane-1,4-diyl, tetrahydropyran-2,5-diyl, pyrimidine-2,5-diyl; m = 0 - 2; Z11 = CH2CH2, CF2CF2, CF2CH2, CH2CF2, CH2O, OCH2, CF2O, OCF2; W = CH, C; B, D = cyclohexane-1,4-diyl, B', D'; n = 0, 1; Y11 = :O, C(SR12)(SR13), :CF2, H, F, Cl, Br, I, CN, OH, SH, COR14, OSO2R15, C(:SR12)(SR13)X'-, B(OR16)(OR17), BF3-M+, Si(OR18)(OR19)(OR20), C1-15-alkyl, C1-15-haloalkyl; Y12, Y13 = H, C1-15-haloalkyl, C1-15-alkyl; L1, L2, L3 = H, F; R12, R13 = (un)branched C1-15-alkyl; R12R13 = (CH2)p; p = 2 - 6; R14 = OH, O-aryl, O-aralkyl, O-alkyl, Cl, Br, aryl, aralkyl, alkyl; R15 = aryl, aralkyl, C1-15-alkyl, C1-15-haloalkyl; R16, R17 = C1-15-alkyl, C1-15-haloalkyl; R16R17 = (CH2)p; R18, R19, R20 = (un)branched C1-15-alkyl; M+ = alkali metal cation, NH4+; X' = weak coordination anion; etc.] and procedure for their production One procedure for the the preparation of I is characterized by: (i) reaction of R11AmZ11CH2CHO with Y12CH:C(Y13)CO2R31 (R31 = C1-15-alkyl); (ii) cyclization of R11AmZ11CH(CHO)CHY12CHY13CO2R31; (iii) condensation of pyrone II (X = O) with CF2Br2 in the presence of P[N(R21)2]3, P[N(R21)2]2(OR22), or P[N(R21)2](OR22)2 (R21, R22 = C1-15-alkyl) to give pyran II (X = CF2) or condensation with CHG(SR12)(S13) [G = P(OC2H2R23)3; R23 = C1-15-perfluoroalkyl, SiMe3, SiEt3] to give pyran II [X = C(SR12)(SR13)]. Thus, pyran III was prepared from Me(CH2)7CHO, via cyclocondensation with H2C:CHCO2Me to give 5-heptyl-2-pyranone, reaction with 4-BrC6H4Li followed by Et3SiH and BF3OEt2 to give 2-(4-bromophenyl)-5-heptylpyran, reaction with B(OMe)3 followed by acid hydrolysis to give 4-(5-heptylpyran-2-yl)phenylboronic acid, basic hydrolysis to give 2-(4-Hydroxyphenyl)-5-heptylpyran, hydrogenation to give 2-(4-oxocyclohexyl)-5-heptylpyran, condensation of with 2-(trimethylsilyl)-1,3-dithiane to give the cyclohexyldenedithiane, and addition reaction of 3,4,5-trifluorophenol followed by fluorination with Et3N·3HF.

IT 700819-43-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and hydrogenation of; preparation of tetrahydropyran derivs.)

RN 700819-43-8 CAPLUS

CN Phenol, 4-(5-heptyltetrahydro-2H-pyran-2-yl)- (CA INDEX NAME)



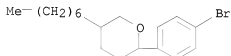
IT 700819-33-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(preparation and reaction of, with tri-Me borate; preparation of
tetrahydropyran
derivs.)

RN 700819-33-6 CAPLUS

CN 2H-Pyran, 2-(4-bromophenyl)-5-heptyltetrahydro- (CA INDEX NAME)



L6 ANSWER 17 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2003:75149 CAPLUS <<LOGINID:20080715>>

DN 138:278701

TI r-2,c-6-Bis(4-chlorophenyl)-3,5-dimethyltetrahydropyran-t-4-ol

AU Krishnamoorthy, Belli Sundaram; Sarangarajan, Thanjavur Ramabhadran;
Thanikasalam, Kanagasabapathy; Panchanatheswaran, Krishnaswamy; Jeyaraman,
Ramasubbu

CS Department of Chemistry, Bharathidasan University, Tiruchirappalli, 620
024, India

SO Acta Crystallographica, Section E: Structure Reports Online (2003),
E59(2), o111-o113

CODEN: ACSEBH; ISSN: 1600-5368

URL: <http://journals.iucr.org/e/issues/2003/02/00/ob6197/index.html>

PB International Union of Crystallography

DT Journal; (online computer file)

LA English

AB Crystals of the title compound are monoclinic, space group P21/c, with a
12.1315(9), b 11.7075(10), c 26.177(3) Å, β 99.728(9)°; Z
= 4 (2 mols./Z), dc = 1.273; R = 0.053, Rw(F2) = 0.146 for 6670
reflections. The structure reveals a chair conformation for the pyran
ring in which the hydroxyl group is axially oriented. All the other
substituents occupy equatorial positions.

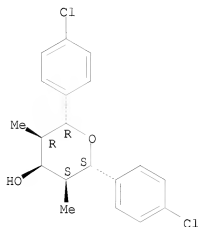
IT 503598-15-0

RL: PRP (Properties)

(crystal structure of)

RN 503598-15-0 CAPLUS
 CN 2H-Pyran-4-ol, 2,6-bis(4-chlorophenyl)tetrahydro-3,5-dimethyl-,
 (2 α ,3 β ,4 β ,5 β ,6 α)- (9CI) (CA INDEX NAME)

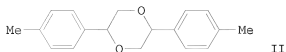
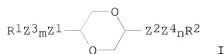
Relative stereochemistry.



RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 18 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 1985:406353 CAPLUS <<LOGINID::20080715>>
 DN 103:6353
 OREF 103:1147a,1150a
 TI 1,4-Dioxanes
 IN Eidenschink, Rudolf; Weber, Georg
 PA Merck Patent G.m.b.H. , Fed. Rep. Ger.
 SO Ger. Offen., 40 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3322982	A1	19850103	DE 1983-3322982	19830625
	GB 2142020	A	19850109	GB 1984-15518	19840618
	JP 60023378	A	19850205	JP 1984-127671	19840622
	US 4755323	A	19880705	US 1986-839293	19860313
PRAI	DE 1983-3322982	A	19830625		
	US 1984-624172	A1	19840625		
OS	MARPAT 103:6353				
GI					



AB Dioxanes I [R1 = C1-10 alkyl (optionally with 1 or 2 CH2 replaced by O), F, Cl, Br, cyano; R2 = R1, H; Z1, Z2 = C(O)O, OC(O), CH2CH2, OCH2, CH2O, bond; Z3, Z4 = 1,4-C6H4, 1,4-cyclohexylene, 1,3-dioxane-2,5-diyl, 1,4-dioxane-2,5-diyl, 1,4-piperidinediyl, 1,4-bicyclo[2.2.2]octylene, 2,5-pyrimidinediyl (un)substituted by 1-4 F atoms; m, n = 0-3; m + n = 1-3], useful as components of liquid crystalline dielects., were prepared

Treating

PhCOMe at 2° with SnCl4 at <20°, then with 4-methylstyrene oxide 1 h at 20° gave trans-II.

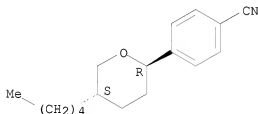
IT 96787-16-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, as liquid crystalline dielec.)

RN 96787-16-5 CAPLUS

CN Benzonitrile, 4-(tetrahydro-5-pentyl-2H-pyran-2-yl)-, trans- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 19 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 1985:195308 CAPLUS <<LOGINID:20080715>>

DN 102:195308

OREF 102:30493a,30496a

TI Tetrahydropyrans for liquid crystal display devices

IN Eidenschink, Rudolf; Krause, Joachim; Fuss, Peter

PA Merck Patent G.m.b.H. , Fed. Rep. Ger.

SO Ger. Offen., 60 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

PATENT NO.

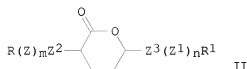
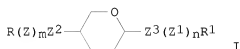
KIND

DATE

APPLICATION NO.

DATE

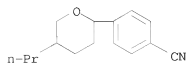
PI	DE 3306960	A1	19840830	DE 1983-3306960	19830228
	EP 117476	A1	19840905	EP 1984-101456	19840213
	EP 117476	B1	19870916		
	R: CH, DE, FR, GB, LI				
	JP 59164788	A	19840917	JP 1984-35455	19840228
	US 4818431	A	19890404	US 1986-933953	19861124
PRAI	DE 1983-3306960	A	19830228		
	US 1984-583507	A1	19840224		
OS	MARPAT 102:195308				
GI					



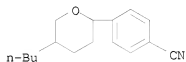
AB Tetrahydropyran derivs. of the formulas I and II (R = C1-10 alkyl or alkyl in which 1 or 2 CH₂ groups are replaced with O, F, Cl, Br, or CN; R₁ = H or R; Z, Z₁ = unsubstituted or 1-4 substituted 1,4-phenylene, 1,4-cyclohexylene, 1,3-dioxan-2,5-diyl, piperindin-1,4-diyl, 1,4-bicyclo[2.2.2]octylene, or pyrimidin-2,5-diyl; Z₂, Z₃ = CO₂, O₂C, CH₂CH₂, OCH₂, CH₂O, or a bond; m, n = 0, 1, 2, or 3; and m + n = ≥1 or ≤3) as well as their acid addition salts are described for use in liquid crystal compns. for display devices. These compds. can be used to produce stable liquid crystal phases with a strongly neg as well as pos. dielec. anisotropy, a small threshold potential electrooptical effect, a highly variable optical anisotropy, and a comparably low viscosity. Thus, a typical liquid crystal composition with a neg. dielec. anisotropy consisted

of 2-p-ethoxyphenyl-5-propyltetrahydropyran 25, trans-1-p-butoxyphenyl-4-propylcyclohexane 25, p-pentylphenyl trans-4-pentylcyclohexanecarboxylate 15, p-ethoxyphenyl trans-4-propylcyclohexanecarboxylate 15, 4-(trans-4-pentylcyclohexyl)-4'-(trans-4-propylcyclohexyl)biphenyl 10, and 4-butyl-2-cyanophenyl p-trans-4-propylcyclohexylbenzoate 10% showed a clearing point of 61°.

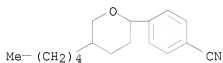
IT 95377-05-2 95377-06-3
 RL: TEM (Technical or engineered material use); USES (Uses)
 (liquid crystal compns. containing, for electrooptical display devices)
 RN 95377-05-2 CAPLUS
 CN Benzonitrile, 4-(tetrahydro-5-propyl-2H-pyran-2-yl)- (CA INDEX NAME)



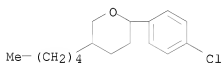
RN 95377-06-3 CAPLUS
 CN Benzonitrile, 4-(5-butyltetrahydro-2H-pyran-2-yl)- (CA INDEX NAME)



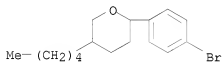
IT 95377-14-3P 95391-61-0P 95391-62-1P
 95391-63-2P
 RL: PREP (Preparation)
 (preparation and liquid crystal display applications of)
 RN 95377-14-3 CAPLUS
 CN Benzonitrile, 4-(tetrahydro-5-pentyl-2H-pyran-2-yl)- (CA INDEX NAME)



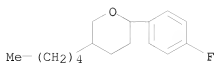
RN 95391-61-0 CAPLUS
 CN 2H-Pyran, 2-(4-chlorophenyl)tetrahydro-5-pentyl- (CA INDEX NAME)



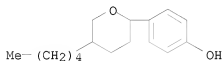
RN 95391-62-1 CAPLUS
 CN 2H-Pyran, 2-(4-bromophenyl)tetrahydro-5-pentyl- (CA INDEX NAME)



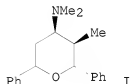
RN 95391-63-2 CAPLUS
 CN 2H-Pyran, 2-(4-fluorophenyl)tetrahydro-5-pentyl- (CA INDEX NAME)



IT 95377-38-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with hexyl iodide)
 RN 95377-38-1 CAPLUS
 CN Phenol, 4-(tetrahydro-5-pentyl-2H-pyran-2-yl)- (CA INDEX NAME)



L6 ANSWER 20 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN
 AN 1983:437717 CAPLUS <<LOGINID::20080715>>
 DN 99:37717
 OREF 99:5921a,5924a
 TI Base strengths of 4-aminooxanes (tetrahydropyrans), (methylamino)oxanes,
 (dimethylamino)oxanes, (methylamino)thianes, and (dimethylamino)thianes
 AU Chandrasekara, Nallappan; Subramanian, Pullachipatti K.; Ramalingam,
 Kondareddiar; Satyamurthy, Nagichettiar; Berlin, K. Darrell
 CS Dep. Chem., PSG Coll. Arts and Sci., Coimbatore, 641 014, India
 SO Journal of Organic Chemistry (1983), 48(10), 1597-601
 CODEN: JOCEAH; ISSN: 0022-3263
 DT Journal
 LA English
 GI



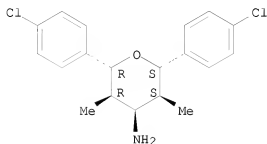
AB The pKa values of numerous title compds. were interpreted in terms of steric effects, and conformations were suggested. For example, a twist conformation was suggested for I. The twist form avoids severe nonbonded interactions. 1H NMR data supported a nonchain form for several of the compds. Solvation effects were discussed.
 IT 85336-33-0P 85336-39-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 85336-33-0 CAPLUS

CN 2H-Pyran-4-amine, 2,6-bis(4-chlorophenyl)tetrahydro-3,5-dimethyl-,
(2 α ,3 β ,4 β ,5 β ,6 α)- (9CI) (CA INDEX NAME)

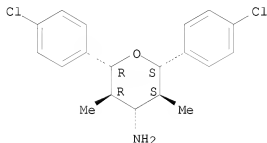
Relative stereochemistry.



RN 85336-39-6 CAPLUS

CN 2H-Pyran-4-amine, 2,6-bis(4-chlorophenyl)tetrahydro-3,5-dimethyl-,
(2 α ,3 β ,4 α ,5 β ,6 α)- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L6 ANSWER 21 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 1979:86324 CAPLUS <<LOGINID::20080715>>

DN 90:86324

OREF 90:13665a,13668a

TI Kinetics of acetylation of some epimeric tetrahydropyran-4-ols

AU Baliah, V.; Mangalam, G.

CS Dep. Chem., Annamalai Univ., Annamalaiagar, India

SO Indian Journal of Chemistry, Section B: Organic Chemistry Including

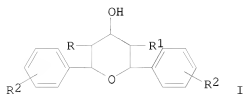
Medicinal Chemistry (1978), 16B(9), 827-8

CODEN: IJSBDB; ISSN: 0376-4699

DT Journal

LA English

GI

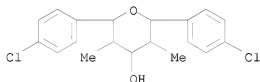


AB Second-order rate consts. were determined for the acetylation of I (R, R1 = H, Me, Et; R2 = H, 4-Cl, 4-MeO, 3-NO2, 4-Me) having the OH group equatorial (α) or axial (β). The α epimer reacted faster than the β . A 3-Et group accelerated the acetylation of the α epimer and inhibited that of the β epimer. When R = R1 = Me, the rate was lowered for both epimers.

IT 67405-38-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(acetylation of, kinetics of)

RN 67405-38-3 CAPLUS

CN 2H-Pyran-4-ol, 2,6-bis(4-chlorophenyl)tetrahydro-3,5-dimethyl- (9CI) (CA INDEX NAME)



L6 ANSWER 22 OF 22 CAPLUS COPYRIGHT 2008 ACS on STN

AN 1978:508937 CAPLUS <<LOGINID::20080715>>

DN 89:108937

OREF 89:16765a,16768a

TI Preparation and stereochemistry of some substituted tetrahydropyran-4-ones and tetrahydropyran-4-ols

AU Baliah, V.; Mangalam, G.

CS Dep. Chem., Annamalai Univ., Annamalaiagar, India

SO Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1978), 16B(3), 213-15

CODEN: IJSBDB; ISSN: 0376-4699

DT Journal

LA English

OS CASREACT 89:108937

AB 3-Ethyl-2,6-diphenyltetrahydropyran-4-one and 2,6-diaryl-3,5-dimethyltetrahydropyran-4-ones (aryl = p-RC6H4; R = Cl, MeO, Me; m-O2NC6H4) were prepared. A probable conformation is suggested for 3-methyl-2,6-diphenyltetrahydropyran-4-one on the basis of NMR spectrum. The reduction of tetrahydropyran-4-ones by different methods afforded epimeric pairs of tetrahydropyran-4-ols which were separated by column chromatog. The conformations of the epimeric alcs. are discussed.

IT 67405-38-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 67405-38-3 CAPLUS
CN 2H-Pyran-4-ol, 2,6-bis(4-chlorophenyl)tetrahydro-3,5-dimethyl- (9CI) (CA
INDEX NAME)

